

**Permit No. WA-000178-3**  
Issuance Date: April 8, 2002  
Effective Date: May 1, 2002  
Expiration Date: May 1, 2007  
Modification Date: April 16, 2002

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM  
WASTE DISCHARGE PERMIT

State of Washington  
DEPARTMENT OF ECOLOGY  
Olympia, Washington 98504-8711

In compliance with the provisions of  
The State of Washington Water Pollution Control Law  
Chapter 90.48 Revised Code of Washington  
and  
The Federal Water Pollution Control Act  
(The Clean Water Act)  
Title 33 United States Code, Section 1251 et seq.

**U.S. Oil & Refining Co.**

P.O. Box 2255  
Tacoma, Washington 98401

Facility Location:

3001 Marshall Avenue  
Tacoma, Washington

Water Body I.D. No.:

WA-10-0020

Receiving Water:

Blair Waterway (Outfall 001)  
Lincoln Avenue Ditch  
(Outfall 002)  
Groundwater (Outfall 003)

Discharge Location:

Outfall 001 (Lincoln Ave. Tidal Gate)  
Latitude: 47° 15' 52" N  
Longitude: 122° 23' 38" W

Outfall 001-A (Compositor)  
Outfall 001-B (Clean Water Discharge)  
Latitude: 47° 15' 29" N  
Longitude: 122° 23' 38" W

Outfall 002 (NW Tank #80018)

Latitude: 47° 15' 27" N  
Longitude: 122° 24' 06" W

Outfall 003 (Marine Terminal Infiltration Basin)

Latitude: 47° 15' 53" N  
Longitude: 122° 23' 53" W

Industry Type:

Petroleum Refinery

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is authorized to discharge in accordance with  
the special and general conditions which follow.

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Carol Kraege, P.E.  
Industrial Section Manager  
Solid Waste and Financial Assistance Program

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**SUMMARY OF PERMIT ACTIVITIES AND REPORT SUBMITTALS**  
**Refer to the special and general conditions of this permit for additional submittal requirements.**

Permit Section	Activity/Report	Activity/Report Frequency	Report Submittal/Activity Date
S2.A.	Discharge Monitoring Report (DMR)	monthly	15th day of each month
S2.E.	Flow Measurement Calibration	as per manual recommendation or at least annually	No submittal required. Maintain records on-site for at least 3 years
S2.G.	Additional Monitoring by the Permittee	as necessary	With the DMR
S2.H.2	Noncompliance Notification – Verbal Report	as necessary	Within 24 hours of discovery
S2.H.3	Noncompliance Notification – Written Report	as necessary	Within 5 days for bypasses or upsets, otherwise within 30 days or with subsequent DMR
S2.I.	Spill Reporting and Notification System	1/permit cycle	November 1, 2002
S2.I.	Spill Reporting and Notification	as necessary	In accordance with the reporting system
S3.A.	Treatment Efficiency Study – Identification of sampling points and existing data	1/permit cycle	November 1, 2002
S3.A.	Treatment Efficiency Study – Sampling	6 sampling intervals	February 1, 2004
S3.A.	Treatment Efficiency Study Results and Engineering Report	1/permit cycle	August 1, 2004
S3.A.	Treatment Efficiency Study and Engineering Report Analysis Update	1/permit cycle	No later November 1, 2006
S3.B.1	Effluent Recharacterization for Evaluation of Human Health Criteria - Sampling	4/permit cycle, at least 6 months apart	
S3.B.1	Human Health Criteria Sampling Results	1/permit cycle	No later than November 1, 2006
S3.B.2.A-B	Dioxin Study Regeneration Wastewater, Effluent and Sludge Sampling	2 regeneration events, 2 sludge & 2 effluent samples	Must begin with the first reformer to be regenerated after May 1, 2002.
S3.B.2.C	Dioxin Study Report	1/permit cycle	Within 3 months of the last sampling event
S3.B.3	Sediment Sampling and Analysis Plan	1/permit cycle	No later than May 1, 2006
S3.B.3	Sediment Sampling	1/permit cycle	Within 6 months of Department approval of Sediment Sampling Plan
S3.B.3	Sediment Data Report	1/permit cycle	With the application for permit renewal.

Permit Section	Activity/Report	Activity/Report Frequency	Report Submittal/Activity Date
S3.G	Outfall Line To Blair Waterway Engineering Design Report	1/permit cycle	May 1, 2004.
S3.G	Construction of New Outfall Line	1/permit cycle	Complete construction by September 1, 2006
S4.A.	Acute Toxicity Recharacterization Monitoring	2 sampling events	1 sampling event each during the summer 2006 and winter 2005/2006 prior to submission of application for permit renewal
S4.A.	Acute Toxicity Recharacterization Report	1/permit cycle	No later than November 1, 2006.
S5.A.	Effluent Chronic Toxicity Sampling and Analysis	6 sampling events/1 year	Beginning no later than November 1, 2003.
S5.A.	Effluent Chronic Toxicity Recharacterization Report	1/permit cycle	No later than November 1, 2006
S6.A.	Treatment System Operating Plan	2/permit cycle	No later than November 1, 2002, with major changes to the treatment system, and no later November 1, 2006
S6.B.	Bypass	As necessary	Immediate verbal notification
S6.C.1.A	Pollution Prevention Plan Phase I	1/permit cycle	No later than November 1, 2004
S6.C.1.B	Pollution Prevention Plan Phase II	1/permit cycle	No later than November 1, 2005
S6.C.7	Stormwater Pollution Prevention Inspections	2/year, 1 wet season and 1 dry season	Reported with Pollution Prevention Progress Reports
S6.C.8	Pollution Prevention Progress Report	Every 2 years following submittal of Phase I	Beginning November 1, 2006
G1.C.	Notice of Change in Authorization	as necessary	
G7.	Application for permit renewal	1/permit cycle	No later than November 1, 2006

## **SPECIAL CONDITIONS**

### **S1. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS**

#### **A. Basis of Limitations**

The effluent limitations in the permit are based on guidelines published August 12, 1985 under 40 CFR Part 419 by the Environmental Protection Agency (EPA) for the topping subcategory of petroleum refining. These limitations are based on terms of a settlement agreement dated April 17, 1984, between EPA and the Natural Resources Defense Council resolving litigation about the EPA guidelines. The August 12, 1985 guidelines establish Best Available Technology (BAT) and Best Conventional Technology (BCT) as equal to Best Practicable Technology (BPT) for all parameters except phenols and chromium. Each of the guidelines was evaluated for phenols and chromium and whichever was most stringent was applied.

In order to protect existing water quality and preserve the designated beneficial uses of Washington's surface waters, WAC 173-201A-060 states that waste discharge permits shall be conditioned such that the discharge will meet established Water Quality Standards.

#### **B. Process Wastewater Limitations and Monitoring Requirements (Outfall 001)**

All discharges and activities authorized by this permit shall be consistent with the terms and conditions of this permit.

The discharge of any of the pollutants in the following table more frequently than, or at a level in excess of, that identified and authorized by this permit shall constitute a violation of the terms and conditions of the terms and conditions of this permit.

Beginning on the effective date of this permit, the Permittee is authorized to discharge wastewater treatment plant effluent at the permitted location, subject to meeting the following limitations as tabulated on pages 7-8. These limitations are based on the existing and predicted composition of the crude feedstock at the time of issuance of the permit. If the quality of the feedstock changes significantly during the term of the permit, the permit will be reopened as necessary to modify the limitations after submittal and review of the modified process configuration information.

**Effluent Limitations: Outfall 001**

Parameter	Units	Effluent Limitation		Monitoring Frequency	Sample Type
		Average Monthly <sup>a</sup>	Maximum Daily <sup>b</sup>	Samples/ Week	
Biochemical Oxygen Demand (5-day) <sup>c</sup>	lbs/day	125	236	1	24 hr composite
Chemical Oxygen Demand	lbs/day	628	1215	7	24 hr composite
Total Suspended Solids	lbs/day	106	165	7	24 hr composite
Oil and Grease	lbs/day	38	74	7	Grab
Oil and Grease	mg/l	The concentration of oil and grease in the discharge shall at no time exceed 15 mg/l, and shall not exceed 10 mg/l more than three days per month.			
Phenolic Compounds <sup>c</sup>	lbs/day	0.65	1.77	6/year (2 months apart)	24 hr composite
Ammonia as N <sup>c</sup>	lbs/day	14	31	1	24 hr composite
Sulfide <sup>c</sup>	lbs/day	0.71	1.56	2/month	grab
Total Chromium	lbs/day	0.87	2.28	semi-annually	24 hr composite
Hexavalent Chromium	lbs/day	0.06	0.13	semi-annually	24 hr composite
pH	pH shall be maintained within the range of 6.0-9.0. Excursions between 5.0 and 6.0, or 9.0 and 10.0 shall not be considered violations provided no single excursion exceeds 60 minutes in length and total excursions do not exceed 7 hours and 30 minutes per month. Any excursions below 5.0 and above 10.0 are violations. The instantaneous maximum and minimum pH shall be reported monthly. In the event of a failure of continuous monitoring equipment, hourly grab samples shall meet the frequency requirements.				Continuous recording or hourly grab
Temperature	°F	There is no limitation for this parameter. The highest recorded temperature for the month, the lowest recorded temperature for the month and the monthly average shall be reported in the DMR.			Continuous recording or daily grab

Parameter	Units	Effluent Limitation		Monitoring Frequency	Sample Type
		Average Monthly <sup>a</sup>	Maximum Daily <sup>b</sup>	Samples/ Week	
Rainfall	inches/day	There is no limitation for this parameter. The daily total rainfall shall be reported in the monthly DMR.			daily
Final Effluent Flow	MGD	There is no limitation for this parameter. The daily maximum and the monthly average shall be reported in the monthly DMR.			continuous recording
Feedstock Rate	barrels per stream day <sup>d</sup>	There is no limitation for this parameter. The monthly average shall be reported in the cover letter to the monthly DMR.			monthly

<sup>a</sup> The average monthly effluent limitation is defined as the highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month. Additional allocation may be permitted for stormwater runoff water according to Permit Condition S1.C.

<sup>b</sup> The maximum daily effluent limitation is defined as the highest allowable daily discharge. The daily discharge means the discharge of a pollutant measured during a calendar day. For pollutants with limitations expressed in units of mass, the daily discharge is calculated as the total mass of the pollutants discharged over the day. For other units of measurement, the daily discharge is the average measurement of the pollutant over the day. Additional allocation may be permitted for stormwater runoff according to Permit Condition S1.C.

<sup>c</sup> The monitoring frequencies for these parameters have been reduced as a result of consistent performance well below the technical limits. Should the treatment performance deteriorate the department shall require an increase in the monitoring frequencies to the levels required in the previous permit (BOD 3/7, Phenolics 1/7, Ammonia 7/7, and Sulfide 1/7). The Department will notify the Permittee by letter to increase monitoring upon the Department's determination of deteriorating performance.

<sup>d</sup> Barrels per stream day is defined as the total crude feedstock volume in one month divided by the number of days of operation of the atmospheric distillation units in the month. Barrels per calendar day is defined as the total crude feedstock volume in one month divided by the number of days in the month.



**C. Stormwater Allocation (Outfall 001)**

The Permittee is authorized to discharge additional amounts of the following parameters based on stormwater flow through Outfall 001. **During the months of June through September the permittee shall only be allowed to claim the stormwater allocation when it can be demonstrated that measurable rainfall has occurred at the refinery site in the previous ten calendar days.** If rainfall data on-site is unavailable due to equipment malfunction, data from nearby rainfall gauging sites can be used. In the event that a large stormwater inventory must be released during the months of June through October, the Permittee can submit operational data supporting use of the stormwater allocation to the Department with the DMR. Upon receipt of the supporting data, the Department will determine if the use of the stormwater allocation is appropriate and notify the Permittee by letter.

The stormwater flow rate shall be defined as the difference between total measured effluent through Outfall 001 and the average dry weather flow rate. **The average dry weather flow is hereby established as 331,200 gallons per day (230 gpm).**

Parameter	Stormwater Allocation: Outfall 001	
	Average Monthly	Maximum Daily
	Pounds/Million Gallons	
Biochemical Oxygen Demand (5-Day)	220	400
Chemical Oxygen Demand	1500	3000
Total Suspended Solids	180	280
Oil and Grease	67	130

**D. Marine Terminal (Dock) Stormwater Limitations and Monitoring Requirements (Outfall 003)**

The discharge of any of the pollutants in the following table more frequently than, or at a level in excess of, that authorized by this permit shall constitute a violation of the terms and conditions of this permit.

**Beginning on the effective date of this permit, the Permittee is authorized to discharge stormwater at the permitted location, subject to meeting the following limitations in the table below.**

No sampling for the following parameters is required during any month without discharge to Outfall 003. All of the information required by the following table

shall be reported on the monthly DMR for the month in which the sampling was conducted.

Parameter	Marine Terminal Stormwater Limitation (Outfall 003)	Monitoring Frequency/Sample Type
Oil and Grease	The concentration in the discharge shall at no time exceed 15 mg/l	Once per month/grab when discharging
pH	In the range of 6.0 to 9.0	Once per month/grab when discharging
Biochemical Oxygen Demand (5-day)	Once per year/grab	
Chemical Oxygen Demand	Once per year/grab	
NWTPH-Dx (diesel)	Once per year/grab	

#### E. Clean Water Discharge

Beginning on the effective date of this permit, the Permittee may discharge clean water, such as storage tank hydro test water, from Outfalls 001B, 002 and 003, on a case-by-case basis. Prior to any such discharge, the Permittee shall contact the Department and **at a minimum** provide the following information:

1. The nature of the activity that is generating the discharge.
2. The total volume of water expected to be discharged.
3. The results of the chemical analysis of the water. The water shall be analyzed for the following constituents: COD, TSS, Oil and Grease, Ammonia as N and pH. The analysis shall also include any other parameter deemed necessary by the Department.
4. The rate at which the water will be discharged, in gallons per minute. The discharge rate shall be limited to that which will not cause erosion of ditches or structural damage to culverts and their entrances or exits.
5. Any alternatives to the discharge, such as reuse, storage or recycling of the water.

The discharge may not proceed until the Department has reviewed the information provided and has authorized the discharge. Authorization from the Department will be verbal followed by a letter to the Permittee.

#### F. Firewater Clean Water Discharge

The Permittee is authorized to discharge clean firewater water through outfalls 001, 002, 003 or from the dockside firewater system during monthly testing of hydrants and the dockside fire suppression system. The Permittee shall report firewater testing on the monthly discharge monitoring report. Duration and an estimated flow volume shall be reported.

## **S2. MONITORING AND REPORTING**

The Permittee shall monitor and report in accordance with the following conditions. The falsification of information submitted to the Department shall constitute a violation of the terms and conditions of this permit.

### **A. Reporting**

Monitoring results obtained during the previous month shall be summarized and reported on a form provided, or otherwise approved, by the Department. **In addition, a summary sheet listing daily results for the parameters listed in this section, MDLs, and QLs (when applicable), shall be submitted to the Department.** The report and summary sheet shall be sent to the Department of Ecology, Industrial Section, P. O. Box 47706, Olympia, Washington 98504-7706. Monitoring shall be started on the effective date of the permit and the first report is due on the **15th day of the following month**. Monitoring results obtained during the month shall be summarized on the Discharge Monitoring Report (DMR) Form (EPA 3320-1) and submitted no later than the 15th day of the following month, unless otherwise specified in this permit.

All lab reports providing data for organic and metal parameters shall include the following information: sampling date, sample location, date of analysis, parameter name, CAS number if available, analytical method/number, method detection limit (MDL), quantitation limit (QL), reporting units and concentration detected.

Discharge Monitoring Report forms must be submitted monthly whether or not the facility was discharging. If there was no discharge during a given monitoring period, submit the form as required with the words "no discharge" entered in the place of the monitoring results.

Tidal gate monitoring shall be submitted with the monthly DMR Report.

### **B. Records Retention**

The Permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least **3 years**. This period of retention shall be extended during the course of any unresolved litigation regarding the discharge of pollutants by the Permittee or when requested by the Director.

### **C. Recording of Results**

For each measurement or sample taken, the Permittee shall record the following information: (1) the date, exact place and time of sampling; (2) the individual who performed the sampling or measurement; (3) the dates the analyses were performed; (4) who performed the analyses; (5) the analytical techniques or methods used; and (6) the results of all analyses.

**D. Sampling and Analytical Procedures**

Samples and measurements taken to meet the requirements of this permit shall be representative of the volume and nature of the monitored discharge, including representative sampling of any unusual discharge or discharge condition, including bypasses, upsets and maintenance-related conditions affecting effluent quality.

Sampling and analytical methods used to meet the monitoring requirements specified in this permit shall conform to the *Guidelines Establishing Test Procedures for the Analysis of Pollutants* contained in 40 CFR Part 136 or to the latest revision of *Standard Methods for the Examination of Water and Wastewater* (APHA), unless otherwise specified in this permit or approved in writing by the Department.

**E. Flow Measurement**

Appropriate flow measurement devices and methods consistent with accepted scientific practices shall be selected and used to ensure the accuracy and reliability of measurements of the volume of monitored discharges. The devices shall be installed, calibrated, and maintained to ensure that the accuracy of the measurements are consistent with the accepted industry standard for that type of device. **Frequency of calibration shall be in conformance with manufacturer's recommendations or at a minimum frequency of at least one calibration per year.** Calibration records should be maintained for a minimum of three years.

**F. Laboratory Accreditation**

All monitoring data required by the Department shall be prepared by a laboratory registered or accredited under the provisions of *Accreditation of Environmental Laboratories*, Chapter 173-50 WAC. Flow, temperature, rainfall measurement, pH, and internal process control parameters are exempted from the requirement. pH shall be accredited if the laboratory must otherwise be registered or accredited.

**G. Additional Monitoring by the Permittee**

If the Permittee monitors any pollutant in the effluent more frequently than required by this permit (S1.) using test procedures specified by Condition S2.D. of this permit, then the results of this monitoring shall be included in the calculation and reporting of the data submitted in the Permittee's self-monitoring reports.

**H. Noncompliance Notification**

In the event the Permittee is unable to comply with any of the permit terms and conditions due to any cause, the Permittee shall:

1. Immediately take action to stop, contain, and cleanup unauthorized discharges or otherwise stop the violation, correct the problem and, if

applicable, repeat sampling and analysis of any violation immediately and submit the results to the Department within 30 days after becoming aware of the violation;

2. Immediately notify the Department of the failure to comply; and
3. Submit a detailed written report to the Department within thirty days (within 5 days for upsets and bypasses), unless requested earlier by the Department. The report should describe the nature of the violation, corrective action taken and/or planned, steps to be taken to prevent a recurrence, results of the resampling, and any other pertinent information.

Compliance with these requirements does not relieve the Permittee from responsibility to maintain continuous compliance with the terms and conditions of this permit or the resulting liability for failure to comply.

#### **I. Spill Reporting and Notification**

The Permittee shall prepare a description of the reporting system which will be used by the facility to alert responsible managers and legal authorities in the event of a spill or unplanned discharge of: 1) oil and petroleum products, 2) materials, when spilled or otherwise released into the environment, are designated Dangerous Waste (DW) or Extremely Hazardous Waste (EHW) by the procedures set forth in WAC 173-303-070, or 3) materials which may become pollutants or cause pollution upon reaching state waters.

The reporting system description shall be submitted to the Department by **November 1, 2002**.

The Permittee shall notify the Department of any spills or unplanned discharges of the materials described above and in accordance with the facility's reporting system.

### **S3. OTHER REQUIREMENTS**

#### **A. Treatment Efficiency Study and Engineering Report**

The Permittee shall conduct chemical analyses of influent and effluent samples from several points within the wastewater treatment system to determine treatment and removal efficiencies. Influent and effluent samples shall be collected from the following points:

1. a sampling point upstream of the API forebays but as near as possible to the forebays,
2. effluent from the equalization tank,
3. final effluent,
4. influent to the stormwater basin,

## 5. stormwater basin effluent.

At the time of sampling the flow through the treatment units shall be monitored and recorded. Acceptable methods of monitoring shall include: in pipe metering, measuring dye concentrations, or any other method approved by Ecology.

The **specific** influent and effluent sampling points shall be identified on a flow diagram of the wastewater treatment system. The flow diagram shall identify all extraneous wastewater streams to the individual treatment units, including recycle streams. The sample points shall be selected to be representative of each wastewater stream without the influence of recycle streams. Flow monitoring method and monitoring points shall also be identified for each treatment system (process and stormwater). This information shall be submitted to Ecology **November 1, 2002**.

The Permittee may submit existing data on internal waste streams for substitution or partial substitution of the following sampling requirements. Existing data shall be submitted for Ecology review **November 1, 2002**. The data submittal shall include a discussion of the sampling point and methods used to ensure that the data is representative. Ecology will then make a determination on the usability of the data and any subsequent sampling required.

**Influent and effluent sampling shall be conducted during six separate intervals by February 1, 2004.** Three of the sampling intervals shall be conducted when the effluent plant is **primarily** processing dry weather flow; the other three intervals shall be conducted when the effluent plant is treating wet weather flow. Minor precipitation events during the dry weather sampling are not expected to impact the data significantly but should be recorded if they occur. Sampling intervals shall be spaced at least one month apart.

Samples shall be collected when the wastewater treatment system is in a relatively steady state. The timing shall be such that the effluent samples from each point correspond to the upstream influent samples and the resultant analytical results can be effectively used to estimate removal efficiencies across the applicable portions of the treatment system.

The following table summarizes the required monitoring to evaluate the efficiency of the treatment system:

Sampling Requirements	Wet Weather Flow Intervals			Dry Weather Flow Intervals		
	1	2	3	4	5	6
Full suite of parameters at locations 1,2,3,4,5 with automated 24-hour composite sampler, and oil & grease grab sample at locations 1,2,3,4,5	1 set*			1 set		
Oil & Grease grab samples at locations 1,2,3,4,5	5 sets	5 sets	5 sets	5 sets	5 sets	5 sets
BOD <sub>5</sub> and TSS automated 24-hour composite samples at locations 1,2,3,4,5	5 sets			5 sets		
BOD <sub>5</sub> & TSS 24-hour composite samples at		5	5		5	5

locations 1,2,3,4,5 – 6 equally spaced grab composited samples acceptable		sets	sets		sets	sets
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\* “Set” is defined as one sample collected at each of the identified sampling points.

During one wet and one dry weather interval samples from locations 1,2,3,4,and 5 shall be analyzed for the following conventionals and non-conventionals: BOD<sub>5</sub>, COD, ammonia, TKN, oil & grease, TSS, and sulfide; priority pollutant metals; priority pollutant volatiles; and priority pollutant base/neutral/acids. The preceding analyses correspond to the “full suite” designation in the above table. With the exception of oil & grease, samples at all locations shall be collected with a 24-hour composite sampler. A separate grab sample shall be collected for oil & grease at each identified location.

Priority pollutant scans for this study may be done in conjunction with those scans required for human health characterization wherever the timing is appropriate. A priority pollutant list with CAS numbers and minimum detection limits is provided in **Appendix A**. The priority pollutant scan may exclude PCBs, PBBs, and all pesticides except any listed pesticide that is used on the refinery site.

During the same wet and dry weather sampling intervals that samples are collected to analyze for priority pollutants, **five additional sets of composite samples** shall be collected during each sampling interval at locations 1,2,3,4, and 5 and analyzed for **BOD<sub>5</sub>, TSS, and oil and grease**. The samples for BOD and TSS shall be collected with a 24-hour automated composite sampler. Separate grab samples shall be collected at each location and analyzed for oil & grease.

Sampling shall also be conducted during four other intervals (two wet and two dry weather as identified above). During each interval, five sets of composite samples shall be collected at sample locations 1,2,3,4,and 5 and analyzed for BOD<sub>5</sub>, TSS, and oil & grease. The samples for BOD<sub>5</sub> and TSS shall be representative 24-hour composites consisting of continuous sampling or six grab samples equally spaced over a 24-hour period. Separate grab samples shall be collected at each sample location and analyzed for oil & grease.

Sample analysis shall be conducted in accordance with 40 CFR 136 and/or Standard Methods for the Examination of Water and Wastewater, 18th edition, 1992, or updated versions thereof. The Permittee shall follow the quality assurance procedures in 40 CFR 136 and/or Standard Methods for the Examination of Water and Wastewater, 18th edition, 1992 or updated versions thereof.

The Permittee shall also prepare an engineering report on the wastewater treatment system. The report shall be prepared in accordance with Chapter 173-240 WAC and include the following elements:

1. A schematic of the treatment units.
2. The last 2-3 years of flow data through the treatment units including recycle streams. Flow data shall be presented in terms of average dry weather flow,

average monthly flow of the maximum month, and peak hourly flow. If flow-monitoring data is not available for wastewater streams then an estimate shall be provided with the method used for estimation.

3. Basic design data and sizing calculations for each unit in the wastewater treatment system. Clarifier information should include detention times, overflow rates, solids and weir loading rates, volume and depth. Activated sludge treatment information shall include hydraulic detention time, volumetric loading, MLSS, F:M ratio, return ratio, and sludge residence time. Information for the stormwater basin shall include solids loading rates, volume and retention time. This information shall be provided for design criteria parameters -- BOD, TSS, and oil and grease, where applicable.
4. An analysis of current treatment and removal efficiencies and current operating conditions for each treatment unit based on information collected in the treatment efficiency study described above.
5. Predicted design capacities including hydraulic and organic loadings for each wastewater treatment unit under the flow conditions described above in (2). The predicted design capacities shall be based on the information collected during the study, the previous 2-3 years of flow data, and any additional relevant information collected by the Permittee.
6. Predicted effluent wastewater characteristics at design flows.

**The engineering report shall be submitted to the Department for review and approval no later than August 1, 2004.**

By, **November 1, 2006**, the Permittee shall submit an analysis to the Department that compares current conditions within the refinery to the predicted design capacity of the wastewater treatment system, as determined in the approved engineering report. The analysis shall also predict the next permit term's production increases and the resultant impacts to the wastewater treatment system capacity. The report shall include a discussion of any production increases, changes to crude sources, modifications to process units, changes in additives, etc., that could potentially cause a change in wastewater characteristics.

## **B. Characterization Studies**

### **1. Human Health Criteria**

Washington's water quality standards now include 91 numeric health-based criteria in addition to the aquatic life criteria. The human health criteria were promulgated for the state by the U.S. EPA in it's National Toxics Rule (Federal Register, Volume 57, No. 246, Tuesday, December 22, 1992). The discharge must be evaluated for reasonable potential to violate the human health criteria. Human health criteria are required to be met at the edge of the chronic zone. The mixing zone design conditions for human health criteria are different from that allowed for aquatic life criteria and result in a different allowable dilution. In order to more thoroughly evaluate human health criteria the Permittee shall recharacterize the effluent by sampling the final effluent for the 91 human health criteria listed pollutants, excluding PCBs, PBBs, asbestos, and



pesticides, unless the pesticide is used on the refinery site. In addition to the human health criteria, the final effluent shall be analyzed for dibenzofuran, using EPA Method 8270 or its equivalent. The effluent shall be sampled and analyzed at least **4 times** during the term of this permit. The sampling events shall be spaced at least 6 months apart.

**The data shall be submitted no later than November 1, 2006.** Priority pollutant scans for this requirement may be completed in conjunction with those scans required for the treatment efficiency study and dioxin study wherever the timing is appropriate.

Most parameters have had adequate detection levels in previous priority pollutant scans. Certain human health parameters require more stringent testing than that required for aquatic life criteria. Those parameters are specifically listed below. Included in that list are the minimum detection levels necessary to determine if the Permittee is in compliance with human health criteria. The detection level required is dependent on the number of sample events (4 are assumed). The available dilution and the number of sample events have been factored into the detection limit determination.

PARAMETER	MDL in µg/L
Acrylonitrile	48.2
Benzidine	0.039
Benzo(a)anthracene	2.26
Benzo(a)pyrene	2.26
Benzo(b)fluoranthene	2.26
Benzo(k)fluoranthene	2.26
Chrysene	2.26
Dibenzo(a,h)anthracene	2.26
3,3'-Dichlorobenzidine	5.63
Hexachlorobenzene	0.056
Ideno(1,2,3-cd)pyrene	2.26

The detection level for the listed parameters may not be achievable because of the limitations of the available test methods. The Permittee is required to achieve the best, reasonably available detection limit obtainable, for their specific wastewater effluent, using approved test methods. If a detection limit is not achievable the Permittee shall notify the Department and include an explanation with the test results.

## 2. Dioxin Study

### A. Wastewater

The Permittee shall monitor the chlorinated dioxin and furan (2,3,7,8-Cl substituted tetra- through octa-congeners) concentrations in the wastewater stream from the catalytic reformer during regeneration of the catalyst two times during the permit term. **Monitoring shall be conducted during the first two reformer regenerations to occur after May 1, 2002 as long as API sludges can be representatively sampled for dioxin.** A grab sample shall be collected from each caustic wash during the regeneration of the reformer unit. The total flow from each caustic wash shall be measured.

The Permittee shall sample the final effluent for the chlorinated dioxins and furans (2,3,7,8-Cl substituted tetra- through octa-congeners) and dibenzofuran on two different occasions. **Sampling events shall be timed to capture effluent that is most likely to contain wastewater generated during the catalytic reformer regeneration events that are sampled for dioxins in the caustic wash water.**

Analysis including sample containers and QA/QC shall be conducted in accordance with Method 1613: Tetra- through Octa-Chlorinated Dioxins and Furans by Isotopic Dilution HRGC/HRMS, USEPA Office of Water, Engineering and Analysis Division, Revision A. The Minimum Level (ML) of detection for 2,3,7,8-TCDD/TCDF shall be 10 parts per quadrillion or less. The Permittee shall report the lowest detected concentrations of all 2,3,7,8-Cl substituted dioxins and furans that meet the quality assurance specifications of Method 1613, including all detected concentrations below the calibration limits of Method 1613.

B. API Sludges

The Permittee shall analyze two grab samples of the API separator sludge for chlorinated dioxins and furans (2,3,7,8-Cl substituted tetra- through octa-congeners). **Sampling events shall be timed to capture sludges generated during the catalytic reformer regeneration events in which the caustic wash water is sampled for dioxins or when the API separator contains sludge levels that can be representatively sampled.**

Analysis including sample containers and QA/QC shall be conducted in accordance with Method 8290, Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS), SW-846, Test Methods for Evaluating Solid Waste, USEPA, Office of Solid Waste, September, 1994. The Minimum Level (ML) of detection for the chlorinated dioxins and furans shall be 5 parts per trillion. The Permittee shall report concentrations of all 2,3,7,8-Cl substituted dioxins and furans detected including those detected below the ML, where the method detection limit is below the ML.

C. Dioxin Study Report

**The Permittee shall submit to the Department a Dioxin Study Report containing the results of the sampling and analysis no later than 3 months after the last sampling event.**

The wastewater data report to Ecology shall include: date sampled, total flow for each wash, and the concentration of the 2,3,7,8-Cl substituted tetra- through octa- dioxin and furan congeners from each caustic wash. The Permittee shall require the laboratory to report and maintain on file for each sample set: the analytical holding times, summary of internal precision and recovery, calibration data, analysis sequence (run logs), daily checks (ongoing precision and accuracy standards, blanks, instrument checks), QA/QC data (duplicates, matrix spikes/labeled analog spikes), and raw data (chromatograms).

The sludge data report to Ecology shall include: date sampled, an estimate of sludge volume (dry weight), and the concentration of the 2,3,7,8-Cl substituted tetra- through octa-dioxin and furan congeners from each sludge sample. The Permittee shall require the laboratory to report and maintain on file for each sample set: the analytical holding times, summary of internal precision and recovery, calibration data, analysis sequence (run logs), daily checks (ongoing precision and accuracy standards, blanks, instrument checks), QA/QC data (duplicates, matrix spikes/labeled analog spikes), and raw data (chromatograms).

3. Sediment Study

**The Permittee shall submit to the Department for review and approval a Sediment Sampling and Analysis Plan for recharacterization of the sediment in the vicinity of the outfall from the Lincoln Avenue Ditch to the Blair Waterway by May 1, 2006.** The purpose of the plan is to determine baseline sediment quality in the vicinity of the Permittee's discharge location.

**Within 6 months of Department approval of the Sediment Sampling and Analysis Plan, sediments will be collected and analyzed. The Permittee shall submit to the Department a Sediment Data Report containing the results of the sediment sampling and analysis with the application for permit renewal.**

A. Sediment Sampling and Analysis Plan

1. The Permittee shall prepare a Sediment Sampling and Analysis Plan following the guidance provided in the Sediment Source Control Standards User Manual, Appendix B: Sediment Sampling and Analysis Plan Appendix (Ecology, 1995).
2. The Sediment Sampling and Analysis Plan shall include 2 discrete sampling stations in the vicinity of the discharge.

## B. Sediment Data Report

The Sediment Data Report shall conform to the approved Sampling and Analysis Plan.

## C. Composite Sample

After a portion of the daily composite sample is removed for the Permittee's analysis, the remainder, a minimum of 2 gallons, shall be retained until 3:00 P.M. The composite sample shall be kept refrigerated at or below 4° centigrade in the dark during collection and storage. On days when the discharge occurs over a period of time too short to collect sufficient sample for testing and retainage, hourly grab samples can be used.

## D. Mixing Zone Descriptions

### Outfall 001

The maximum boundaries of the mixing zone in the Blair Waterway are defined as follows:

#### Chronic Mixing Zone

WAC 173-201A-100(4)(b)(i) specifies mixing zones shall not extend in any horizontal direction from the discharge ports for a distance greater than 200 feet plus the depth of water over the discharge ports as measured during mean lower low water (MLLW), and shall not occupy greater than twenty-five percent of the width of the water body as measured during MLLW. The mixing zone extends from the seabed to the top of the water surface. Given a MLLW water depth of 0 feet (0 meters) for the Permittees's Outfall, the horizontal distance therefore is 200 feet (61meters). The mixing zone is a circle (a portion of a circle) with radius of **200 feet (61 meters)** measured from the center of the discharge slot. The mixing zone extends from the seabed to the top of the water surface. Chronic aquatic life criteria and human health criteria must be met at the edge of the chronic zone.

#### Acute Mixing Zone

WAC 173-201A-100(8)(b) specifies that in estuarine waters a zone where acute criteria may be exceeded shall not extend beyond 10% of the distance established for the maximum or chronic zone as measured independently from the discharge port. The acute zone therefore extends **20 feet (6.1 meters)** from the center of the discharge slot. The mixing zone extends from the seabed to the top of the water surface. Acute aquatic life criteria must be met at the edge of the acute zone.

#### Dilution Factors

#### Available Dilution

Acute Aquatic Life Criteria	2.0
Chronic Aquatic Life Criteria	71.3
Human Health Criteria – Carcinogen	71.3
Human Health Criteria – Non-carcinogen	71.3

**E. Storage Tank Wastewater**

The operation of removing wastewater from oil, product, and intermediate distillate storage tanks shall be performed in a manner and with facilities as required to prevent the wastewater from draining or spilling onto the ground.

**F. Solid Waste Handling**

The Permittee shall handle and dispose of all solid waste material in such a manner as to prevent its entry into state ground or surface water. The Permittee shall not allow leachate from its solid waste material to enter state waters without providing all known, available, and reasonable methods of treatment, nor allow such leachate to cause violations of the State Surface Water Quality Standards, Chapter 173-201A WAC, or the State Ground Water Quality Standards, Chapter 173-200 WAC. The Permittee shall apply for a permit or permit modification as may be required for such discharges to state ground or surface waters.

**G. Outfall Line to Blair Waterway.**

The Permittee shall construct a new outfall line from the facility to the Blair Waterway. An Engineering Design Report (EDR) for the construction of a new outfall shall be submitted to Ecology for review and approval. The EDR shall meet the requirements of Chapter 173-240-140 WAC. An Operation and Maintenance (O&M) Manual, that meets the requirements of Chapter 173-240-150 WAC, shall be submitted to Ecology for review and approval. Any contemplated changes during construction, which are significant deviations from the approved plans, shall first be submitted to the Department for approval.

**Construction Schedule:**

1. The engineering design report shall be submitted to the Department for review and approval by **May 1, 2004**.
2. Construction shall be completed by **September 1, 2006** or within two years after all necessary construction permits have been issued.
3. An Operation and Maintenance Manual shall be submitted to Ecology for review and approval at least 60 days prior to startup of the system.

**S4. ACUTE TOXICITY**

**A. Testing Requirements**

**The Permittee shall test final effluent once in the last summer (2006) and once in the second to last winter (2005 – 2006) prior to submission of the application for permit renewal.** The two species listed below shall be used on each sample and the results submitted to the Department as a part of the permit renewal application process. The Permittee shall conduct acute toxicity testing on a series of five concentrations of effluent, including a 50 % Effluent Concentration (the ACEC) and a 100% Effluent Concentration, and a control in order to be able

to determine appropriate point estimates and an NOEC. The percent survival in 100% effluent shall also be reported.

Acute toxicity tests shall be conducted with the following species and protocols:

- 1) Fathead minnow, *Pimephales promelas* (96 hour static-renewal test, method: EPA/600/4-90/027F)
- 2) Daphnid, *Ceriodaphnia dubia*, *Daphnia pulex*, or *Daphnia magna* (48 hour static test, method: EPA/600/4-90/027F).

## **B. Sampling and Reporting Requirements**

1. All reports for effluent characterization or compliance monitoring shall be submitted in accordance with the most recent version of Department of Ecology Publication # WQ-R-95-80, *Laboratory Guidance and Whole Effluent Toxicity Test Review Criteria* in regards to format and content. Reports shall contain bench sheets and reference toxicant results for test methods. If the lab provides the toxicity test data on floppy disk for electronic entry into the Department's database, then the Permittee shall send the disk to the Department along with the test report, bench sheets, and reference toxicant results.
2. Testing shall be conducted on effluent grab samples. Samples taken for toxicity testing shall be cooled to 4 degrees Celsius while being collected and shall be sent to the lab immediately upon completion. The lab shall begin the toxicity testing as soon as possible but no later than 36 hours after sampling was ended.
3. All samples and test solutions for toxicity testing shall have water quality measurements as specified in Department of Ecology Publication # WQ-R-95-80, *Laboratory Guidance and Whole Effluent Toxicity Test Review Criteria* or most recent version thereof.
4. All toxicity tests shall meet quality assurance criteria and test conditions in the most recent versions of the EPA manual listed in subsection A. and the Department of Ecology Publication # WQ-R-95-80, *Laboratory Guidance and Whole Effluent Toxicity Test Review Criteria*. If test results are determined to be invalid or anomalous by the Department, testing shall be repeated with freshly collected effluent.
5. Control water and dilution water shall be laboratory water meeting the requirements of the EPA manual listed in subsection A or pristine natural water of sufficient quality for good control performance.
6. The whole effluent toxicity tests shall be run on an unmodified sample of final effluent.
7. The Permittee may choose to conduct a full dilution series test during compliance monitoring in order to determine dose response. In this case, the series must have a minimum of five effluent concentrations and a control. The series of concentrations must include the ACEC.

8. All whole effluent toxicity tests, effluent screening tests, and rapid screening tests that involve hypothesis testing and do not comply with the acute statistical power standard of 29% as defined in WAC 173-205-020 must be repeated on a fresh sample with an increased number of replicates to increase the power.

## S5. CHRONIC TOXICITY

### A. Effluent Characterization

The Permittee shall conduct chronic toxicity testing on the final effluent. The two chronic toxicity tests listed below shall be conducted on each sample taken for effluent characterization.

**Testing shall begin prior to November 1, 2003.** A written report shall be submitted to the Department within 60 days after the sample date. A final effluent characterization summary report shall be submitted to the Department within 90 days after the last monitoring test results are final. This summary report shall include a tabulated summary of the individual test results and any information on sources of toxicity, toxicity source control, correlation with effluent data, and toxicity treatability which is developed during the period of testing.

**Effluent testing for chronic toxicity shall be conducted every other month for one year.** The Permittee shall conduct chronic toxicity testing during effluent characterization on a 50 % effluent concentration (the ACEC or maximum concentration of effluent during critical conditions at the boundary of the acute dilution zone). The Permittee shall compare the 50% effluent concentration result to the control using hypothesis testing at the 0.05 level of significance as described in Appendix H, EPA/600/4-89/001.

Chronic toxicity tests shall be conducted with the following two salt water species and the most recent version of the following protocols:

Saltwater Chronic Toxicity Test Species		Method
Topsmelt or Siverside minnow	<i>Atherinops affinis</i> or <i>Menidia beryllina</i>	EPA/600/R-95/136 or EPA/600/4-91/003
Mysid shrimp	<i>Holmesimysis costata</i> or <i>Mysidopsis bahia</i>	EPA/600/R-95/136 or EPA/600/4-91/003

The Permittee shall use the West Coast fish (topsmelt, *Atherinops affinis*) and mysid (*Holmesimysis costata*) for toxicity testing unless the lab cannot obtain a sufficient quantity of a West Coast species in good condition in which case the East Coast fish (siverside minnow, *Menidia beryllina*) or mysid (*Mysidopsis bahia*) may be substituted.

### B. Effluent Limit for Chronic Toxicity

After completion of effluent characterization, the Permittee has an effluent limit for chronic toxicity if any test conducted for effluent characterization shows a significant difference between the control and the 50 % effluent concentration

(ACEC) at the 0.05 level of significance using hypothesis testing (Appendix H, EPA/600/4-89/001) and shall complete all applicable requirements in subsections C, D, and F.

If no significant difference is shown between the ACEC and the control in any of the chronic toxicity tests, the Permittee has no effluent limit for chronic toxicity and only subsections E and F apply.

**The effluent limit for chronic toxicity is no toxicity detected in a 1.4% effluent concentration.**

In the event of failure to pass the test described in subsection C, of this section, for compliance with the effluent limit for chronic toxicity, the Permittee is considered to be in compliance with all permit requirements for chronic whole effluent toxicity as long as the requirements in subsection D are being met to the satisfaction of the Department.

**C. Monitoring for Compliance with an Effluent Limit for Chronic Toxicity**

Monitoring to determine compliance with the effluent limit shall be conducted quarterly for the remainder of the permit term using each of the species listed in subsection A above on a rotating basis and performed using a 1.4% effluent concentration and a control.

Compliance with the effluent limit for chronic toxicity means no statistically significant difference in response between the control and the CCEC (1.4% effluent concentration). The Permittee shall immediately implement subsection D if any chronic toxicity test conducted for compliance monitoring determines a statistically significant difference in response between the control and the 1.4% effluent concentration using hypothesis testing at the 0.05 level of significance (Appendix H, EPA/600/4-89/001). If the difference in response between the control and the 1.4% effluent concentration is less than 20%, the hypothesis test shall be conducted at the 0.01 level of significance.

In order to establish whether the chronic toxicity limit is eligible for removal from future permits, the Permittee shall also conduct this same hypothesis test (Appendix H, EPA/600/4-89/001) to determine if a statistically significant difference in response exists between the ACEC and the control.

**D. Response to Noncompliance with an Effluent Limit for Chronic Toxicity**

If a toxicity test conducted for compliance monitoring under subsection C determines a statistically significant difference in response between the 1.4% effluent concentration and the control, the Permittee shall begin additional compliance monitoring within one week from the time of receiving the test results.

This additional monitoring shall be conducted monthly for three consecutive months using the same test and species as the failed compliance test. Testing shall be conducted using a 1.4% effluent concentration. The discharger shall return to the original monitoring frequency in subsection C after completion of the additional compliance monitoring.

If the Permittee believes that a test indicating noncompliance will be identified by the Department as an anomalous test result, the Permittee may notify the Department that the compliance test result might be anomalous and that the



Permittee intends to take only one additional sample for toxicity testing and wait for notification from the Department before completing the additional monitoring required in this subsection. The notification to the Department shall accompany the report of the compliance test result and identify the reason for considering the compliance test result to be anomalous. The Permittee shall complete all of the additional monitoring required in this subsection as soon as possible after notification by the Department that the compliance test result was not anomalous. If the one additional sample fails to comply with the effluent limit for chronic toxicity, then the Permittee shall proceed without delay to complete all of the additional monitoring required in this subsection. The one additional test result shall replace the compliance test result upon determination by the Department that the compliance test result was anomalous.

If all of the additional compliance monitoring conducted in accordance with this subsection complies with the permit limit, the Permittee shall search all pertinent and recent facility records (operating records, monitoring results, inspection records, spill reports, weather records, production records, raw material purchases, pretreatment records, etc.) and submit a report to the Department on possible causes and preventive measures for the transient toxicity event which triggered the additional compliance monitoring.

If toxicity occurs in violation of the chronic toxicity limit during the additional compliance monitoring, the Permittee shall submit a Toxicity Identification/Reduction Evaluation (TI/RE) plan to the Department within 60 days after test results are final. The TI/RE plan shall be based on WAC 173-205-100(2) and shall be implemented in accordance with WAC 173-205-100(3).

#### **E. Monitoring When There Is No Permit Limit for Chronic Toxicity**

The Permittee shall test final effluent once in the last summer and once in the last winter prior to submission of the application for permit renewal. All species used in the initial chronic effluent characterization or substitutes approved by the Department shall be used and results submitted to the Department as a part of the permit renewal application process.

#### **F. Sampling and Reporting Requirements**

1. All reports for effluent characterization or compliance monitoring shall be submitted in accordance with the most recent version of Department of Ecology Publication #WQ-R-95-80, *Laboratory Guidance and Whole Effluent Toxicity Test Review Criteria* in regards to format and content. Reports shall contain bench sheets and reference toxicant results for test methods. If the lab provides the toxicity test data on floppy disk for electronic entry into the Department's database, then the Permittee shall send the disk to the Department along with the test report, bench sheets, and reference toxicant results.
2. Testing shall be conducted on effluent grab samples. Samples taken for toxicity testing shall be cooled to 4 degrees Celsius while being collected and shall be sent to the lab immediately upon completion. The lab shall begin the toxicity testing as soon as possible but no later than 36 hours after sampling was ended.

3. All samples and test solutions for toxicity testing shall have water quality measurements as specified in Department of Ecology Publication #WQ-R-95-80, *Laboratory Guidance and Whole Effluent Toxicity Test Review Criteria* or most recent version thereof.
4. All toxicity tests shall meet quality assurance criteria and test conditions in the most recent versions of the EPA manual listed in subsection A. and the Department of Ecology Publication #WQ-R-95-80, *Laboratory Guidance and Whole Effluent Toxicity Test Review Criteria*. If test results are determined to be invalid or anomalous by the Department, testing shall be repeated with freshly collected effluent.
5. Control water and dilution water shall be laboratory water meeting the requirements of the EPA manual listed in subsection A or pristine natural water of sufficient quality for good control performance.
6. The whole effluent toxicity tests shall be run on an unmodified sample of final effluent.
7. The Permittee may choose to conduct a full dilution series test during compliance monitoring in order to determine dose response. In this case, the series must have a minimum of five effluent concentrations and a control. The series of concentrations must include a 1.4% effluent concentration.
8. All whole effluent toxicity tests, effluent screening tests, and rapid screening tests that involve hypothesis testing, and do not comply with the chronic statistical power standard of 39% as defined in WAC 173-205-020, must be repeated on a fresh sample with an increased number of replicates to increase the power.

## **S6. OPERATING AND PLAN REQUIREMENTS**

The Permittee shall at all times be responsible for the proper operation and maintenance of any facilities or systems of control installed to achieve compliance with the terms and conditions of the permit.

### **A. Treatment System Operating Plan**

Wastewater treatment systems shall be operated according to the detailed operations and maintenance (O&M) manual prepared in accordance with WAC 173-240-150. The approved O&M manual shall be kept available at the treatment plant. All operators are responsible for being familiar with, and using, this manual. The O&M manual shall be updated as necessary.

For the purposes of this NPDES permit, a treatment system operating plan (TSOP) is a concise summary of specifically defined elements of the O&M manual. The TSOP shall not conflict with the O&M manual. An O&M manual may be submitted in lieu of a TSOP if the location of the required information is specifically identified. The TSOP shall include the following information:

1. A baseline operating condition which describes the operating parameters and procedures used to meet the effluent limitations of S1. at the feedstock rate levels used in developing these limitations.
2. In the event of feedstock rates which are below the baseline levels used to establish these limitations, the plan shall describe the operating procedures and conditions needed to maintain design treatment efficiency. The monitoring and reporting shall be described in the plan.
3. In the event of an upset due to plant maintenance activities, severe stormwater events, start ups or shut downs, or other unknown causes, the plan shall describe the operating procedures and conditions employed to mitigate the upset. The monitoring and reporting shall be described in the plan.
4. A description of any regularly scheduled maintenance or repair activities at the refinery which would significantly affect the volume or character of the wastes discharged to the wastewater treatment system and a plan for monitoring and treating/controlling the discharge of maintenance-related materials (such as cleaners, degreasers, solvents, etc.).

**An updated TSOP shall be submitted to the Department by November 1, 2002 and by November 1, 2006.** In addition, this TSOP shall be updated and submitted, as necessary, to include requirements for any major modifications of the treatment system during the permit term.

## **B. Bypass Procedures**

The Permittee shall immediately notify the Department of any spill, overflow, or bypass from any portion of the collection or treatment system.

The bypass of wastes from any portion of the treatment system is prohibited unless one of the following conditions (1, 2, or 3) applies:

1. Unavoidable Bypass – The bypass is unavoidable to prevent loss of life, personal injury, or severe property damage. “Severe property damage” means substantial physical damage to property, damage to the treatment facilities which would cause them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. If the resulting bypass from any portion of the treatment system results in noncompliance with this permit the Permittee shall notify the Department in accordance with condition S2.H. “Noncompliance Notification”.
2. Anticipated Bypass That Has The Potential to Violate Permit Limits or Conditions – The bypass is authorized by an administrative order issued by the Department. The Permittee shall notify the Department at least 30 days before the planned date of the bypass. The notice shall contain (1) a description of the bypass and its cause; (2) an analysis of all known alternatives which would eliminate, reduce, or mitigate the need for bypassing; (3) a cost-effectiveness analysis of alternatives including comparative resource damage assessment; (4) the minimum and maximum duration of bypass under each alternative; (5) a

recommendation as to the preferred alternative for conducting the bypass; (6) the projected date of the bypass initiation; (7) a statement of compliance with SEPA; (8) if a water quality criteria exceedance is unavoidable, a request for modification of water quality standard as provided for in WAC 173/201A-110, and (9) steps taken or planned to reduce, eliminate, and prevent reoccurrence of the bypass.

For probable construction bypasses, the need to bypass is to be identified as early in the planning process as possible. The analysis required above shall be considered during preparation of the engineering report or facilities plan and plans and specifications and shall be included to the extent practical. In cases where the probable need to bypass is determined early, continued analysis is necessary up to and including the construction period in an effort to minimize or eliminate the bypass.

The Department will consider the following prior to issuing an administrative order:

- a. If the bypass is necessary to perform construction or maintenance-related activities essential to meet the requirements of the permit.
- b. If there are feasible alternatives to bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, stopping production, maintenance during normal periods of equipment down time, or transport of untreated wastes to another treatment facility.
- c. If the bypass is planned and scheduled to minimize adverse effects on the public and the environment.

After consideration of the above and the adverse effects of the proposed bypass and any other relevant factors, the Department will approve or deny the request. The public shall be notified and given an opportunity to comment on bypass incidents of significant duration, to the extent feasible. Approval of a request to bypass will be by administrative order issued by the Department under RCW 90.48.120.

3. Bypass For Essential Maintenance Without the Potential to Cause Violation of Permit Limits or Conditions – Bypass is authorized if it is for essential maintenance and does not have the potential to cause violations of limitations or other conditions of the permit, or adversely impact public health as determined by the Department prior to the bypass.

### **C. Pollution Prevention Plan**

The Permittee shall continue to ensure proper operation and maintenance of the refinery process units and wastewater treatment system by following existing Standard Operating Procedures (SOPs) and Best Management Practices (BMPs). These procedures and other measures/facilities currently employed at the refinery to prevent or minimize the potential for release of pollutants to the wastewater treatment system, stormwater, and/or waters of the state shall be

continued or maintained unless modified by the pollution prevention plan required below.

The Permittee shall develop a pollution prevention plan for sources of water pollutants. The objective of the pollution prevention plan is to identify pollution prevention opportunities and implement those opportunities that are technically and economically achievable.

1. Plan Development and Implementation

The Permittee shall develop, implement and comply with the pollution prevention plan in accordance with the following schedule:

- A. **By November 1, 2004** the Permittee shall develop a pollution prevention plan that addresses the Phase I requirements of Permit Condition S.6.C.3. The plan shall be submitted to the Department for review and approval.
- B. **By November 1, 2005**, The Permittee shall develop Phase II of the pollution prevention plan as required in Permit Condition S.6.C.4 and submit it to the Department for review and approval.
- C. The Permittee shall implement selected pollution prevention opportunities according to the timeframes specified in the plan or any plan modifications thereof.

Guidance used in developing a pollution prevention plan shall include the document *Stormwater Pollution Prevention Planning for Industrial Facilities* published by the Department of Ecology, the 'Pollution Prevention and Best Management Practices' section of the Ecology Permit Writer's Manual (Chapter XII.), the methodologies of the *Pollution Prevention Planning Guidance Manual for Chapter 173-307 WAC* (Revised December 1996) -- Worksheets G and H, and other information provided by the Ecology Permit Manager. The Permittee will be expected to apply the methodologies from the existing guidance to cover other sources, pathways, or measures not covered within the strict scope of the WAC 173-307 guidance. Other information available to the Permittee may also be used in preparing the plan.

The approved pollution prevention plan and any modifications to the plan shall be followed throughout the term of the permit.

2. General Requirements

A. Plan Retention and Record Availability:

The pollution prevention plan shall be retained onsite or within reasonable access to the site. Staff training records shall be maintained onsite and be available for inspection.

B. Modifications:

The Permittee shall modify the pollution prevention plan whenever there is a change in design, construction, operation, or maintenance

of the facility, which significantly increases the generation or potential generation of water pollutants or causes the pollution prevention plan to be less effective in controlling pollutants. The Permittee shall provide for implementation of any modifications to the pollution prevention plan in a timely manner.

Modifications to the plan shall be submitted to the Department in the biennial report required in Permit Condition S.6.C.8.

3. Specific Requirements – Phase I

A. Policy Statement and Signature:

The pollution prevention plan shall include a policy statement articulating management and corporate support for the plan and a commitment to implement the plan and to continued pursuit of pollution prevention opportunities. The plan and all its modifications shall be signed in accordance with Permit Condition G1.

B. Employee Involvement, Training, and Awareness:

The pollution prevention plan shall include a description of personnel training and employee involvement programs that emphasize pollution prevention and solicit employee ideas about pollution prevention opportunities and other environmental issues.

C. Description of Current Pollution Prevention Activities:

The plan shall include a description of preventive measures and facilities already employed at the refinery to prevent, reduce, eliminate, or control releases of pollutants to influent wastewater streams, stormwater, and/or waters of the state.

D. Description of Potential Pollutants and Sources:

The pollution prevention plan shall include a detailed description of the processes or activities, which contribute or potentially contribute pollutants to any wastewater streams that represent 95% of the influent streams, where the wastewater stream enters the collection system, stormwater, groundwater and wetlands. Minor incidental wastestreams to stormwater, such as landscaping fertilizers, do not have to be included. The plan shall identify the materials used, processed, stored, treated, or disposed at the facility and the pollutants that are generated or potentially generated or released. The level of detail should be sufficient to help identify and understand how and why materials are used and pollutants generated or released. Process flow diagrams and/or material input/output information shall be included on a process unit basis.

The Permittee shall include in the plan all materials which may become pollutants or cause pollution upon reaching state waters, including, but not limited to:

- 1) persistent bioaccumulative and toxic chemicals (PBTs),
- 2) oil and petroleum products,

- 3) materials which, when spilled or otherwise released into the environment, would be designated Dangerous Waste (DW) or Extremely Hazardous Waste (EHW) by the procedures set forth in WAC 173-303-070,
- 4) materials which, when discharged into the wastewater treatment system, "pass through" or cannot be treated by the wastewater treatment system,
- 5) Materials which may result in acute toxicity in the effluent.

In determining which sources and pollutants to address in the plan, the Permittee shall use available sampling data, such as influent characterization data collected in the treatment efficiency study (Permit Condition S3.A.), as well as knowledge of processes and materials, and available information on the relative toxicity or hazard of materials. Sources of PBTs shall be included in the analysis.

E. Identification, Evaluation, and Selection of Pollution Prevention Opportunities:

The plan shall identify pollution prevention opportunities and evaluate their technical (including safety considerations) and economic feasibility. Based upon this evaluation and other factors, the opportunities shall be prioritized. In ranking opportunities, the Permittee shall consider pollutant loading and toxicity and the potential to achieve the greatest reduction with respect to time and costs.

The Permittee shall concentrate on opportunities that reduce or eliminate PBTs, priority pollutant metals, and diethanolamine (DEA) to influent and upstream flows to the oily water sewer. Solids and hydrocarbon loadings to the oily water sewer shall also be evaluated. Stormwater shall be evaluated for oil & grease and solids loading as well as toxics. The Permittee will not be required to investigate raw material feedstock substitutions for crude oil.

The Permittee shall provide their rationale for how the pollution prevention opportunities are prioritized. In addition to technical and economical feasibility, other factors may influence ranking of opportunities and should be included in the discussion. These factors may include capital projects planned or ongoing at the refinery that will provide a benefit to environmental media other than water, corresponding reduction in safety risks, etc. Projects that achieve that highest environmental benefit shall have greater priority.

4. Specific Requirements – Phase II

In Phase II of the plan, the Permittee shall provide a detailed analysis of technical and economical feasibility for the top ten pollution prevention opportunities (if more than ten opportunities were identified), as prioritized in the approved Phase I submittal of the plan.

In evaluating and selecting pollution prevention opportunities, the Permittee shall give preference first to those that eliminate, avoid, or reduce the generation of water pollutants, second to those that recycle or

reuse the pollutants, and third to those that provide at-source or near-source treatment to remove pollutants or render them less toxic or harmful.

Opportunities determined to be technically and economically feasible will be considered as known, available, and reasonable and therefore are required to be selected and scheduled for implementation. For each pollution prevention opportunity selected, the plan shall identify the process(es) or activities it affects, an estimate of the amount of pollutants reduced, and the environmental or other benefits that will be achieved.

The plan shall include a schedule for implementation of each selected opportunity. The Permittee is expected to establish reasonable priorities and schedules for implementation to achieve the greatest reduction in pollutant quantity and toxicity, as well as for management and fiscal necessity.

If a detailed analysis of technical and economical feasibility for any pollution prevention opportunity will take longer than the time allotted for developing Phase II of the plan, the Permittee shall include a schedule for completing the analysis in the Phase II plan submittal. The timeframe for implementing any opportunities scheduled for further evaluation and then selected shall be provided in the biennial report.

5. Considerations in Identifying, Evaluating, and Selecting Opportunities

- A. In identifying, evaluating, and selecting pollution prevention opportunities for implementation, the Permittee shall consider the following for the catalytic reformer spent caustic and wash water waste stream and any wastewater stream that represents 95% of the Permittee's influent streams:
1. All reasonably expected activities and conditions, such as normal operations, maintenance, and other ancillary activities; equipment failure; improper operation; upsets, accidents, spills, leaks; and natural events such as rainfall, snowfall, etc.
  2. All areas of the refinery with potential to generate water pollutants including process units, raw material and product storage, handling and transfer facilities, material handling areas, maintenance areas, solid and hazardous waste storage, treatment, and disposal, and stormwater systems.

The Permittee shall not be required to sample each stream analytically and may use engineering judgement to assess material inputs and outputs on a process unit basis.

- B. Cross-media shift of pollutants should be avoided, unless a clear net environmental benefit results, and compliance with standards applicable to other media or management programs would be maintained.
- C. The following are examples of pollution prevention opportunities that may warrant evaluation:



1. Improving and/or establishing new management practices and standard operating procedures addressing; increased training or supervision; improvements in inventory control, materials and waste handling, general operations, and housekeeping; preventive maintenance; and remedial measures.
2. Process or equipment modifications, including re-engineering processes to use less toxic input materials or to utilize by-products.
3. Material substitution (with the exception of crude oil feedstocks).
4. Reducing material inputs.
5. Recycle/reuse or refinery waste, by-products, or process materials and fluids.
6. Application of water conservation methods, including water reuse.
7. Waste segregation and separation.
8. Alternative and/or enhanced treatment technology, including upstream treatment of pollutants.

6. Incorporating Other Pollution Prevention Plans

The Permittee may incorporate applicable portions of plans prepared for other purposes. Plans or portions of plans incorporated into the pollution prevention plan become enforceable requirements of this permit.

7. Stormwater Inspections

The Permittee shall conduct two stormwater inspections per year; one during the wet season (October 1 - April 30) and the other during the dry season (May1 - September 30).

1. The wet season inspection shall be conducted during a rainfall event and shall include observations of the presence of any floating materials, suspended solids, oil and grease, discolorations, turbidity, odor, etc. in stormwater discharges in stormwater runoff throughout the refinery that could contribute to a discharge off-site.
2. The dry season inspection shall determine the presence of unpermitted non-stormwater discharges such as sanitary wastewater, non-contact cooling water, process wastewater, and drainage from raw material/product/waste storage to the **stormwater drainage system**. If an unpermitted, non-stormwater discharge is discovered, the Permittee shall immediately notify the Department.

Inspections shall be conducted by staff who are knowledgeable and trained in the application of BMPs and pollution prevention activities at the refinery.

8. Plan Evaluation and Biennial Reporting

The Permittee shall periodically evaluate the pollution prevention plan to ensure that it has been updated or otherwise modified to reflect current conditions, that measures to reduce or eliminate pollutant loadings

selected in the plan are adequate and are being properly implemented in accordance with the terms of the permit, and whether any additional controls are needed. The plan shall be modified to include any changes as a result of this evaluation.

**The Permittee shall submit a progress report by November 1, 2006 and every two years thereafter.** The report shall identify the implementation status of each pollution prevention opportunity selected for implementation, the benefits or other results of implementation actions completed, and any modifications or updates to the plan. The report shall also include a summary of the results of stormwater inspections.

9. Continuous Improvement

In maintaining, implementing, and updating the pollution prevention plan, the Permittee is encouraged to employ continuous improvement principles, including the systematic and ongoing identification, evaluation, and implementation of pollution prevention opportunities in all decisions having environmental consequences.

**S7. REOPENER CONDITION**

The Department may re-open and revise or amend this permit if needed to coordinate with issues raised in the watershed/geographic analysis process. The Department may also re-open and revise this permit for any of the reasons stated in General Condition G.3.

## GENERAL CONDITIONS

### G1. SIGNATORY REQUIREMENTS

All applications, reports, or information submitted to the Department shall be signed and certified.

- A. All permit applications shall be signed by either a responsible corporate officer of at least the level of vice president of a corporation, a general partner of a partnership, or the proprietor of a sole proprietorship.
- B. All reports required by this permit and other information requested by the Department shall be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:
  - 1. The authorization is made in writing by a person described above and submitted to the Department, and
  - 2. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility, such as the position of plant manager, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters. (A duly authorized representative may thus be either a named individual or any individual occupying a named position).
- C. Changes to authorization – If an authorization under paragraph B.2. above is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of B.2. must be submitted to the Department prior to or together with any reports, information, or applications to be signed by an authorized representative.
- D. Certification – Any person signing a document under this section shall make the following certification:

“I certify under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.”

### G2. RIGHT OF ENTRY

The Permittee shall allow an authorized representative of the Department, upon the presentation of credentials and such other documents as may be required by law:

- A. To enter upon the premises where a discharge is located or where any records must be kept under the terms and conditions of this permit;

- B. To have access to and copy at reasonable times any records that must be kept under the terms of the permit;
- C. To inspect at reasonable times any monitoring equipment or method of monitoring required in the permit;
- D. To inspect at reasonable times any collection, treatment, pollution management, or discharge facilities; and
- E. To sample at reasonable times any discharge of pollutants.

### **G3. PERMIT ACTIONS**

This permit shall be subject to modification, suspension, or termination, in whole or in part by the Department for any of the following causes:

- A. Violation of any permit term or condition;
- B. Obtaining a permit by misrepresentation or failure to disclose all relevant facts;
- C. A material change in quantity or type of waste disposal;
- D. A material change in the condition of the waters of the state; or
- E. Nonpayment of fees assessed pursuant to RCW 90.48.465.

The Department may also modify this permit, including the schedule of compliance other conditions, if it determines good and valid cause exists, including promulgation or revisions of regulations or new information.

### **G4. REPORTING A CAUSE FOR MODIFICATION**

The Permittee shall submit a new application, or a supplement to the previous application, along with required engineering plans and report, whenever a material change in the quantity or type of discharge is anticipated which is not specifically authorized by this permit. This application shall be submitted at least 60 days prior to any proposed changes. Submission of this application does not relieve the Permittee of the duty to comply with the existing permit until it is modified or reissued.

### **G5. PLAN REVIEW REQUIRED**

Prior to constructing or modifying any wastewater control facilities, an engineering report and detailed plans and specifications shall be submitted to the Department for approval in accordance with Chapter 173-240 WAC. Engineering reports, plans, and specifications should be submitted at least 180 days prior to the planned start of construction. Facilities shall be constructed and operated in accordance with the approved plan.

**G6. COMPLIANCE WITH OTHER LAWS AND STATUTES**

Nothing in the permit shall be construed as excusing the Permittee from compliance with any applicable federal, state, or local statutes, ordinances, or regulations.

**G7. DUTY TO REAPPLY**

The Permittee must reapply, for permit renewal, at least 180 days prior to the specified expiration date of this permit.

**G8. PERMIT TRANSFER**

This permit is automatically transferred to a new owner or operator if:

- A. A written agreement between the old and new owner or operator containing a specific date for transfer of permit responsibility, coverage, and liability is submitted to the Department;
- B. A copy of the permit is provided to the new owner and;
- C. The Department does not notify the Permittee of the need to modify the permit.

Unless this permit is automatically transferred according to section A. above, this permit may be treasured only if it is modified to identify the new Permittee and to incorporate such other requirements as determined necessary by the Department.

**G9. REDUCED PRODUCTION FOR COMPLIANCE**

The Permittee, in order to maintain compliance with its permit, shall control production and/or all discharges upon reduction, loss, failure, or bypass of the treatment facility until the facility is restored or an alternative method of treatment is provided. This requirement applies in the situation where, among other things, the primary source of power of the treatment facility is reduced, lost, or fails.

**G10. REMOVED SUBSTANCES**

Collected screenings, grit, solids, sludges, filter backwash, or other pollutants removed in the course of treatment or control of wastewaters shall not be resuspended or reintroduced to the final effluent stream for discharge to state waters.

**G11. TOXIC POLLUTANTS**

If any applicable toxic effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is established under Section 307(a) of the Clean Water Act for a toxic pollutant and that standard or prohibition is more stringent than any limitation upon such pollutant in the permit, the Department shall institute proceedings to modify or revoke and reissue the permit to conform to the new toxic effluent standard or prohibition.

**G12. OTHER REQUIREMENTS OF 40 CFR**

All other requirements of 40 CFR 122.41 and 122.42 are incorporated in this permit by reference.

**G13. ADDITIONAL MONITORING**

The Department may establish specific monitoring requirements in addition to those contained in this permit by administrative order or permit modification.

**G14. PAYMENT OF FEES**

The Permittee shall submit payment of fees associated with this permit as assessed by the Department. The Department may revoke this permit if the permit fees established under Chapter 173-224 WAC are not paid.

**G15. PENALTIES FOR VIOLATING PERMIT CONDITIONS**

Any person who is found guilty of willfully violating the terms and conditions of this permit shall be deemed guilty of a crime, and upon conviction thereof shall be punished by a fine of up to ten thousand dollars and costs of prosecution, or by imprisonment in the discretion of the court. Each day upon which a willful violation occurs may be deemed a separate and additional violation.

Any person who violates the terms and conditions of a waste discharge permit shall incur, in addition to any other penalty as provided by law, a civil penalty in the amount of up to ten thousand dollars for every such violation. Each and every such violation shall be a separate and distinct offense, and in case of a continuing violation, every day's continuance shall be and be deemed to be a separate and distinct violation.

## Appendix A

### PRIORITY POLLUTANT LIST

Pollutant & CAS No. (if available)	Analytical Protocol as EPA Part 136 methods or Standard Methods	Detection or Quantitation Level
<b>Metals, Cyanide &amp; Total Phenols (Part C)</b>		<b>DL µg/l</b>
Antimony, Total (7440-36-0)	204.2	3
Arsenic, Total (7440-38-2)	206.2	1
Beryllium, Total (7440-43-9)	210.2	1
Cadmium, Total (7440-43-9) *	213.2	0.1
Chromium, Total (7440-47-3)	218.2	1
Copper, Total (7440-50-8)	220.2	1
Lead, Total (7439-92-1)	239.2	1
Mercury, Total (7439-97-6) *	245.1 or 245.2	0.2
Nickel, Total (7440-02-0)	249.2	1
Selenium, Total (7782-49-2)	270.2	2
Silver, Total (7440-22-4)	272.2	0.2
Thallium, Total (7440-28-0)	279.2	1
Zinc, Total (7440-66-6)	289.2	0.05
Cyanide, Total ( )	335.2	20
<b>Dioxin</b>		<b>QL µg/l</b>
2,3,7,8-Tetra-Chlorodibenzo-P-Dioxin (1764-01-6) *	1613	0.00001
<b>Volatile Compounds</b>		<b>QL µg/l</b>
Acrolein (107-02-8)	624	50
Acrylonitrile (107-13-1)	624	50
Benzene (71-43-2)	624	10
Bis (chloromethyl) Ether (542-88-1)	624	10
Bromoform (75-25-2)	624	10
Carbon Tetrachloride (108-90-7)	624	10
Chlorobenzene (108-90-7)	624	50
Chlorodibromomethane (124-48-1)	624	10
Chloroethane (75-00-3)	624	10
Chloroethylvinyl Ether (110-75-8)	624	50
Chloroform (67-66-3)	624	10
Dichlorobromomethane (75-27-4)	624	10
Dichlorodifluoromethane (75-71-8)	624	10
1,1-Dichloroethane (75-34-3)	624	10
1,2-Dichloroethane (107-06-2)	624	10
1,1-Dichloroethylene (75-35-4)	624	10
1,2-Dichloropropane (78-87-5)	624	10
1,3-Dichloropropene (542-75-6)	624	10
Ethylbenzene (100-41-4)	624	10
Methyl Bromide (74-83-9)	624	50
Methyl Chloride (74-87-3)	624	50
Methylene Chloride (75-09-2)	624	20

Pollutant & CAS No. (if available)	Analytical Protocol as EPA Part 136 methods or Standard Methods	Detection or Quantitation Level
1,1,2,2-Tetrachloroethane (79-34-5)	624	10
Tetrachloroethylene (127-18-4)	624	10
Toulene (108-88-3)	624	10
1,2-Trans-Dichloroethylene (156-60-5)	624	10
1,1,1-Trichloroethane (71-55-6)	624	10
1,1,2-Trichloroethane (79-00-5)	624	10
Trichloroethylene (79-01-6)	624	10
Trichlorofluoromethane (75-69-4)	624	10
Vinyl Chloride (75-01-4)	624	10
<b>Acid Compounds</b>		<b>QL µg/l</b>
2-Chlorophenol (95-57-8)	625	10
2,4-Dichlorophenol (120-83-2).	625	10
2,4-Dimethylphenol (105-67-9)	625	10
4,6-Dinitro-O-Cresol (534-52-1)	625	50
2,4 Dinitrophenol (51-28-5)	625	50
2-Nitrophenol (88-75-5)	625	20
4-Nitrophenol (100-02-7)	625	50
P-Chloro-M-Cresol (59-50-7)	625	10
Pentachlorophenol (87-86-5) *	625	50
Phenol (108-95-2)	625	10
2,4,6-Trichlorophenol (88-06-2)	625	10
<b>Base/Neutral Compounds</b>		<b>QL µg/l</b>
Acenaphthene (83-32-9)	625	10
Acenaphtylene (208-96-8)	625	10
Anthracene (120-12-7) *	625	10
Benzidine (92-87-5)	625	50
Benzo (a) Anthracene (56-55-3) *	625	10
Benzo (a) Pyrene (50-32-8) *	625	10
3,4-Benzofluoranthene (205-99-2)	625	10
Benzo (ghi) Perylene (191-24-2) *	625	20
Benzo (k) Fluoranthene (207-08-9)	625	10
Bis (2-Chloroethoxy) Methane (111-91-1)	625	10
Bis (2-Chloroethyl) Ether (111-44-4)	625	10
Bis (2-Chloroisopropyl) Ether (102-60-1)	625	10
Bis (2-Ethylhexyl) Phthalate (117-81-7)	625	10
4-Bromophenyl Phenyl Ether (101-55-3)	625	10
Butyl Benzyl Phthalate (85-68-7)	625	10
2-Chloronaphthalene (91-58-7)	625	10
4-Chlorophenyl Phenyl Ether (7005-72-3)	625	10
Chrysene (218-01-9)	625	10
Dibenzo (a-h) Anthracene (53-70-3)	625	20
1,2-Dichlorobenzene (95-50-1)	625	10
1,3-Dichlorobenzene (541-73-1)	625	10
1,4-Dichlorobenzene (106-46-7) *	625	10
3,3'-Dichlorobenzidine (91-94-1) *	625	50



Pollutant & CAS No. (if available)	Analytical Protocol as EPA Part 136 methods or Standard Methods	Detection or Quantitation Level
Diethyl Phthalate (84-66-2)	625	10
Dimethyl Phthalate (131-11-3)	625	10
Di-N-Butyl Phthalate (84-74-2)	625	10
2,4-Dinitrotoluene (121-14-2)	625	10
2,6-Dinitrotoluene (606-20-2)	625	10
Di-n-octyl Phthalate (117-84-0)	625	10
1,2-Diphenylhydrazine (as Azobenzene) (122-66-7)	625	20
Fluoranthene (206-44-0)	625	10
Fluorene (86-73-7)	625	10
Hexachlorobenzene (118-74-1) *	625	10
Hexachlorobutadiene (87-68-3)	625	10
Hexachlorocyclopentadiene (77-47-4)	625	10
Hexachloroethane (67-72-1)	625	20
Indeno (1,2,3-cd) Pyrene (193-39-5)	625	20
Isophorone (78-59-1)	625	10
Naphthalene (91-20-3)	625	10
Nitrobenzene (98-95-3)	625	10
N-Nitrosodimethylamine (62-75-9)	625	50
N-Nitrosodi-N-Propylamine (621-64-7)	625	20
N-Nitrosodiphenylamine (86-30-6)	625	20
Perylene (198-55-0) *	625	10
Phenanthrene (85-01-8) *	625	10
Pyrene (129-00-0)	625	10
1,2,4-Trichlorobenzene (120-82-1)	625	10
<b>GC/MS Fraction – Pesticides and PCBs</b>		<b>QL µg/l</b>
Aldrin (309-00-2) *	608	0.05
α-BHC (319-84-6)	608	0.05
β-BHC (319-85-7)	608	0.05
γ-BHC (58-89-9)	608	0.05
δ-BHC (319-86-8)	608	0.05
Chlordane (57-74-9) *	608	0.2
4,4'-DDT (50-29-3) *	608	0.1
4,4'-DDE (72-55-9) *	608	0.1
4,4' DDD (72-54-8) *	608	0.1
Dieldrin (60-57-1) *	608	0.1
α-Endosulfan (115-29-7) *	608	0.1
β-Endosulfan (115-29-7) *	608	0.1
Endosulfan Sulfate (1031-07-8) *	608	0.1
Endrin (72-20-8) *	608	0.1
Endrin Aldehyde (7421-93-4)	608	0.1
Heptachlor (76-44-8) *	608	0.05
Heptachlor Epoxide (1024-57-3)	608	0.05
PCB-1242 (53469-21-9) *	608	1.0
PCB-1254 (11097-69-1) *	608	1.0

<b>Pollutant &amp; CAS No. (if available)</b>	<b>Analytical Protocol as EPA Part 136 methods or Standard Methods</b>	<b>Detection or Quantitation Level</b>
PCB-1221 (11104-28-2) *	608	1.0
PCB-1232 (11141-16-5) *	608	1.0
PCB-1248 (12672-29-6) *	608	1.0
PCB-1260 (11096-82-5) *	608	1.0
PCB-1016 (12674-11-2) *	608	1.0
Toxaphene (8001-35-2) *	608	5.0

**\* Persistent, Bioaccumulative and Toxic (PBT) Chemicals of Concern**

This table is a list of all priority pollutants and also includes PBT chemicals of concern indicated with an asterisk. It includes PCB's and pesticides that are not required to be tested for in the treatment efficiency study analysis unless they are used on the refinery site. This table shall not be used as a reference for the human health characterization study since not all of the pollutant parameters are listed and more stringent detection limits need to be met for some parameters as per Permit Condition S.3.B.1.